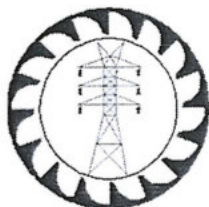


CEB
SPECIFICATION

**SPECIFICATIONS FOR PERSONAL PROTECTIVE
EQUIPMENT**

HEARING PROTECTION

**EAR MUFFS ATTACHED TO AN INDUSTRIAL
SAFETY HELMET**



**CEYLON ELECTRICITY BOARD
SRI LANKA**



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1. SCOPE

This specification specifies the requirements of Ceylon Electricity Board for ear-muffs attached to an industrial safety helmet.

2. SERVICE CONDITIONS

(i)	Annual average ambient temperature	30 °C
(ii)	Maximum ambient temperature	40 °C
(iii)	Maximum relative humidity	90%
(iv)	Environmental conditions	Humid tropical climate

3. APPLICABLE STANDARDS

The equipment and components supplied shall be in accordance with the latest edition of the standards specified below and amendments thereof.

(i)	BS EN 352-3: 2002	Hearing Protectors, General Requirements Part 3: Ear Muffs attached to an industrial safety helmet
(ii)	BS EN 13819-1: 2002	Hearing Protectors – Testing – Part 1: Physical Test Methods
(iii)	BS EN 13819-2: 2002	Hearing Protectors – Testing – Part 2: Acoustic Test Methods
(iv)	EN ISO 4869-2:1994	Acoustics – Hearing Protectors – Part 2: Estimation of effective A- weighted sound pressure levels when hearing protectors are worn
(v)	EN 960:1994	Headforms for use in the testing of protective helmets

4. BASIC FEATURES AND TECHNICAL REQUIREMENTS

Those parts of the ear-muffs that may come into contact with the skin shall be non-staining soft, pliable and not known to be likely to cause skin irritation, allergic reaction or any other adverse effect health.

All parts of the ear-muffs shall be rounded, finished smooth and be free from sharp edges.

Ear-muffs whose cushions and/or liners are intended by the manufacturer to be replaced by the wearer shall not require the use of tools for this purpose.

All materials shall be visibly unimpaired after cleaning and disinfection by the methods specified by the manufacturer.

Sizing and adjustability should be in accordance with EN 13819-1:2002, 4.2. Helmet mounted ear-muffs shall be classified into three size ranges, medium size range, small size range and large size range.



4.1 Minimum attenuation

When tested in accordance with EN 13819-2:2002, 4.2, the values ($M_f - s_f$) of the ear muffs shall not be less than the values given in below table.

Frequency in Hz	125	250	500	1000	2000	4000	8000
($M_f - S_f$) in dB	5	8	10	12	12	12	12

M_f is the mean attenuation data and s_f is the standard deviations as measured in accordance with EN 13819-2:2002.

4.2 Marking

The ear-muffs shall be durably marked with the following information:

- a) The name, trade mark of other identification of the manufacturer or his authorized representative
- b) The model designation
- c) The numbers of the EN standard
- d) In the case of ear-muffs intended by the manufacturer to be worn in a particular orientation, an indication of the FRONT and/or TOP of the cups, and/or an indication of LEFT and RIGHT cup.

4.3 Wearer information

The following information for the wearer shall be supplied with the ear-muffs (as appropriate):

- a) The number of the standard
- b) The name, trade mark of identification of the manufacturer
- c) The model designation;
- d) Materials of the cup supporting arms and of the cushions.
- e) The manufacturer(s) and model designation(s) of helmet(s) in combination with which the ear-muffs satisfy this standard. This information shall be given in the form: "These ear-muffs should be fitted to, and used only with, the following industrial safety helmets.... *(list helmets)*";
- f) Method of assembling the ear-muffs to the helmet;
- g) Method of fitting/adjustment, including instructions regarding the setting of any means to adjust the headband force, and instructions regarding the correct operation of any means to set the parking position and/or the stand-by position;

Parking position is the position of the ear muffs in which the cups are located above the level of the lower edge of the helmet shell.

Standby position is the position of the ear muffs in which the ear muffs are located below the level of the lower edge of the helmet shell and in which the cushions are held away from the side of the head.



- h) The size range(s) of the helmet mounted ear-muffs for each mode of wearing, on both the packaging/box and in wearer information:
- i) For each basic combination, and if required, those supplementary combinations, of helmet mounted ear-muffs, the following sound attenuation values:
 - 1) Mean value and standard deviation at each test frequency;
 - 2) APV- value at each test frequency in accordance with EN ISO 4869-2 with parameter = 1;
 - 3) H-, M- and L- value in accordance with EN ISO 4869-2 with the parameter = 1;
 - 4) SNR-value in accordance with EN ISO 4869-2 with the parameter = 1;

Basic combination is where helmet mounted ear muffs include the model or size of helmet to which a given model of ear muffs is fitted.

Supplementary combination is where helmet mounted ear muffs include a model or size of helmet (other than the helmet of the basic combination) to which the same model of ear muffs is fitted as for the basic combination.

- j) Recommendation that the wearer should ensure that:
 - 1) The helmet mounted ear-muffs are fitted, adjusted and maintained in accordance with the manufacturer's instructions
 - 2) The helmet mounted ear-muffs are worn at all times in noisy surroundings
 - 3) The helmet mounted ear-muffs are regularly inspected for usability
- k) A warning that, if the recommendations given in 4.3 j) are not adhered to, the protection afforded by the helmet mounted ear-muffs will be severely impaired
- l) Methods of cleaning and disinfection which shall specify, and require the use of, agents that are not known to be harmful to the wearer;
- m) The statement "This product may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer",
- n) The statement "Ear-muffs, and in particular cushions, may deteriorate with use and should be examined at frequent intervals for cracking and leakage, for example",
- o) The statement "The fitting of hygiene covers to the cushions may affect the acoustic performance of the ear-muffs",
- p) Recommended storage conditions before and after use;
- q) The designation/reference and other information required when ordering replacement cushions:
- r) If appropriate, the method of cushion replacement;
- s) The mean mass of the ear-muffs to the nearest gram;
- t) The address from which additional information can be obtained.

5. TESTING

The muffs should be subjected to the following tests according to the relevant standard. A summary sheet of tests carried out or test reports shall be submitted as specified in 5.1.

- i. Sizing and Adjustability
- ii. Cup rotation
- iii. Headband force
- iv. Cushion Pressure
- v. Resistance to damage when dropped
- vi. Change in headband force
- vii. Insertion loss
- viii. Resistance to leakage (applicable only if fluid filled cushions are supplied)



- ix. Minimum attenuation

Test Certificates

A *summary sheet* of the tests carried out shall be submitted where the summary sheet clearly shows the equipment concerned, the manufacturer's identity, the tests carried out, test results and the standard's requirements against the test results to determine passing or failing of the test.

The summary sheet shall be from the accredited independent testing laboratory where the testing was carried out and this testing laboratory shall be acceptable to the purchaser. Proof of accreditation of the testing laboratory by a national/international authority shall be forwarded if requested by the purchaser.

Submission of individual test reports is not necessary if duly authenticated summary sheet is submitted as described above.

6. QUALITY ASSURANCE

The manufacturer shall possess valid ISO 9001:2008 or latest Quality Assurance certifications for the plant where the manufacture of equipment is done.

Bidders shall furnish a copy of the ISO certificate certified as true copy of the original by the manufacturer, along with the offer.

7. ADDITIONAL REQUIREMENTS

Packaging and Delivery

Each pair of muffs shall be packaged in an individual container or package of sufficient strength to properly protect the muffs from damage. The outside of the container or package shall be marked as specified in the relevant standard.

The type of packaging suitable for transport shall be defined by the manufacturer.

At the request of the customer or according to government specifications any additional or amended instructions shall be included in the package.

8. INFORMATION TO BE SUPPLIED WITH THE OFFER

The selected bidder shall supply all relevant drawings, technical literature, hand books etc. in English.

The bid shall be accompanied with the following also;

- a) English version of catalogues describing the equipment and indicating the type/model number.
- b) Technical literature in English describing the constructional and operational features, relevant drawings etc. of the equipment.
- c) Information on the following:



Instructions for use, information on storage, fitting and adjustment, handling, disposal, periodic inspection, periodic testing and useful service life

- d) Packing details.
- e) Completed schedule of particulars as per Annex A.
- f) Test reports or summary sheet conforming to clause 5.

9. SAMPLE STUDY

One sample of the offered equipment including accessories if any, shall accompany the bid to facilitate analysis and evaluation. Any additional sample may be requested by the purchaser if such deemed necessary.

10. ANNEX

Annex A - Schedule of Guaranteed technical Particulars



SCHEDULE GUARANTEED TECHNICAL PARTICULARS

(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer/supplier)

Specific Requirements			
Sr No	Item	Requirement	Offered
1.	SNR Value		
2.	Size		
General Requirements			
Sr No	Item	Requirement	Offered
3.	Brand	specify	
4.	Model	specify	
5.	Country of Manufacture	specify	
6.	Applicable Standard .	BS EN 352-3	
7.	Mean mass of the ear muffs	specify	
8.	Material of the cup supporting arms	specify	
9.	Material of the cushions	specify	
10.	Year and Month/Quarter of Manufacture	Manufactured within two years before the bid closing date.	
11.	Marking on the equipment	Please refer clause 4	
12.	Test Reports/ Summary Sheet submitted	Yes, Please refer clause 5	
13.	Quality Assurance for Manufacturer	Yes, Please refer clause 6	
14.	Samples	Yes, Please refer clause 9	
15.	Warranty	Specify	
16.	Packing details submitted	Yes, Please refer clause 8	
17.	Information on the following should be submitted Instructions for use, information on storage, shelf life, fitting and adjustment, handling, cleaning, disposal, periodic inspection, periodic testing	Yes, Please refer clause 8	

I/We certify that the above data are true and correct

.....
Signature of the Bidder/Manufacture and Seal

.....
Date

